



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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March 7, 1988

Mr. Gerald D. Schurtz
Manager Environmental Engineering
Kennecott Explorations (Australia) Ltd.
P.O. Box 11248
Salt Lake City, Utah 84147

Dear Mr. Schurtz:

Re: Mining and Reclamation Plan Review, M/035/009, Barneys Canyon Project, Salt Lake County, Utah

We have completed our review of the mining and reclamation plan submitted on February 11, 1988 for the Barneys Canyon Project. The proposed reclamation would probably be acceptable for a mine site which existed prior to the implementation of our regulations. In the case of a new mine, however, we believe that mine reclamation can meet the reclamation standards required by our rules and regulations if reclamation is factored into mine planning at an early stage. Our reclamation concerns center around the minimal amount of reclamation which is proposed for the waste dumps, open pits and associated roads. These concerns are identified below and must be adequately addressed before we can give tentative approval to the project.

Evaluation of Materials Toxicity, Section 3.11, Pages 85-91

The composite samples used for the acid base potential analysis are not acceptable. The samples do not provide information on the acid base potential of individual strata within the proposed pits. Conclusions based on such a sample assume that overburden and ore of differing properties will be mined and deposited in the same proportions as sampled and uniformly mixed. As we are interested in the acid producing potential of the sulfide material, we request that an additional analysis be conducted on composite samples of the sulfide material from the proposed pits.

Soils and Revegetation, Sections 5.4 - 5.8, Pages 109-118

Please refer to comments regarding variances requested in Sections 6.2, 6.3, 6.5 and 6.7.

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Drainage Plan, Section 5.9.1, Pages 118-120

We request that the text concerning reclamation of project roads be revised to include a commitment to backfill cuts and regrade all roads to a rounded configuration. Where this procedure is impractical due to site topography, we request a commitment to regrade roads to a rounded configuration and redistribute topsoil prior to ripping and seeding. In either case, all project roads should be regraded and roughened such that water is held in place or dispersed rather than concentrated in existing roadside ditches.

Bond Release Application, Section 5.11.3, Page 123

This paragraph is not entirely correct. A portion of the reclamation bond is eligible for release immediately after reclamation. Reclaimed areas are eligible for full bond release when all agreed upon reclamation standards have been met. Please refer to the enclosed Mineral's Program Surety Policy for more details.

Variance Request, Sections 6.1, 6.4 and 6.6, Pages 124-126

A variance from rules M-10(3), Impoundments; M-10(8), Drainages; and M-10(13), Dams is requested for the impoundments created by the 6280 dump and adjacent roadway. We concur with your assessment that these impoundments will serve as needed sediment control basins and provide a beneficial post mining land use. The variance requests for both impoundments are hereby granted on the condition that all applicable approvals are obtained from the State Engineer's Office.

Variance Request, Section 6.3, Page 125

A variance is requested for leaving highwalls in the pits of 47 degrees. A variance request for impounding water, topsoiling and revegetating the pits is implied in the text, but not directly requested. The Division is not willing to grant a blanket variance for the pits unless all of the alternatives for providing a beneficial post mining land use are explored.

It appears that the Melco Pit can be backfilled to the 7100 foot elevation with a relatively small amount of material (refer to North-South Cross Section, Melco Pit). Backfilling would reduce the possibility of the lower sulfide material coming into contact with surface water as well as allowing for topsoiling and revegetation of the lower portion of the pit.

Variance Requests, Sections 6.2, 6.5 and 6.7, Pages 124-126

Rule M-10(4) which refers to slopes has been misrepresented in several portions of the text as: All slopes will not exceed 45 degrees. The 45 degree requirement refers only to highwalls created by the mining of open cuts as is discussed in Rule M-10(5). All other slopes such as waste dumps are to meet the standard set by Rule M-10(4) which is stated in its entirety below.

(4) Slopes - All waste piles, spoil piles, and fills shall, if possible, be regraded to a rounded configuration and they shall be sloped to minimize safety hazards and erosion. The angle of slope from the bottom to the top of the pile can be greater than the surrounding terrain provided that the mass stability of the slope is assured and that the erosion of the slope is minimized by measures such as, but not limited to; terracing, surface drainage facilities, cross-slope ripping or scarifying and vegetation. In no case shall the slope of a pile or fill exceed the angle of repose of the material or such lessor slope as required by the Division considering such factors as: land use, material properties, revegetation potential or erosion control.

Long term mass stability of the waste dumps is very questionable. The text states that the dumps will have a static safety factor as low as 1.05 and 1.10. No information is provided to substantiate these numbers nor is any mention made of the dynamic safety factors which are probably less than 1.

It has been the Division's experience that vegetation will not grow successfully on slopes which are left at the angle of repose. Documentation of this can be provided if so desired. It has also been our experience that it is very difficult to obtain successful revegetation without a suitable soil cover first being laid over waste rock. We recommend that the slope angle of the dumps be reduced and that the slopes be terraced to provide a means for spreading topsoil on the dump faces.

The request for variances to Rules M-10(4), Slopes; M-10(12), Revegetation; and M-10(14), Soils are therefore denied with the following exception:

The variance request for salvaging of topsoils is approved for those areas where steepness of terrain will present a serious safety hazard to the equipment operator. During final reclamation the loss of these soils will have to be made up by topsoil or suitable subsoils borrowed from other sources within the project area.

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Reclamation Plan, General Comments

The reclamation plan should include a discussion of reclamation which will be conducted during mining operations. Areas such as fill slopes, exploration roads and impoundment embankments which are disturbed during mining, but are not envisioned to be redisturbed through final reclamation, should be reclaimed as soon as practical.

Please format any updated information so that we can insert it directly into the current mine and reclamation plan (i.e., replacement pages). This practice will ensure that we will both have a workable and readable plan for the future.

Thank you for your cooperation. Should you wish to discuss any of the above items in detail, please contact me or my staff: Frank Filas, Engineering and Permit Lead; David Wham, Hydrology; and Holland Shepherd, Soils and Vegetation.

Sincerely,

L. P. Braxton

L. P. Braxton, Administrator
Mineral Resource Development
and Reclamation Program

FF/f
Enclosure

cc: F. Filas
H. Shepherd
D. Wham
B. Bayer, JBR
C. Dietz, Water Pollution Control

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